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Seven New Peaches and a New Plum for the Western States

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CONTENTS

	Page		Page
Introduction	1	Nestor	11
Types of peaches	2	Stanford	14
Leeton	4	Ellis	17
Maxine	7	Farida	18
Penryn	9	Padre plum	21

INTRODUCTION

The deciduous fruit-breeding work of the United States Department of Agriculture at Palo Alto, Calif., was begun in the summer of 1922. During 1920 and 1921 the work had been carried on at the Plant Introduction Garden of the Department at Chico, Calif. Still earlier, a considerable number of crosses had been made at the South Haven substation of the Michigan Agricultural Experiment Station, but there the work had been confined mainly to pears. In California those who had long been connected with the fruit industry saw the need of improved varieties, particularly of peaches, for the canning and drying branches of the industry. Accordingly, more attention was given to the peach than to any other fruit, although many crosses of apricots and plums were also made. Comparatively little work was done with the pear, as it seemed desirable to wait until the 2,500 or more seedlings that had been produced at South Haven should have fruited. The results of a number of different combinations of varieties would doubtless indicate the desirable parents for future crosses.

Among the canning varieties of cling peaches, the glandless-leaf varieties, such as Paloro, Hauss, Selma, Peak, and Ontario, are more subject to certain diseases, such as mildew, and are therefore not entirely satisfactory from the grower's point of view. The Tuskena (Tuscan) and Ontario are red-pitted varieties and on that account not fully satisfactory for commercial canning. The Libbee, with an excellent yellow flesh color, has more red than is desirable, and, although leaf glands are present, it nevertheless mildews badly. Some varieties have split pits, and some are not so good in flavor as is desirable. Hardly a variety is grown that does not show some defect from one point of view or another.

Among drying varieties, only the fruit of the Muir yields an ideal product from the standpoint of the packer. Even for shipping, there

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is need of improved early-maturing, yellow-fleshed varieties. The J. H. Hale, for example, although quite largely planted because of its size and high color, is an uncertain bearer in many parts of California, and the tree is often lacking in vigor.

More than 280 different combinations of peach varieties have been produced as a result of the breeding work. The more carefully these hybrids are studied the more our knowledge of the characteristics of their parent varieties is increased and the more apparent become the possibilities of future development. Although no variety seems perfect, many of the new seedlings are an improvement in one way or another over the old sorts. After careful trial, a few have been selected for introduction, and others are expected to be introduced in the near future as their merits and the need for them become apparent. Four of these new varieties (Leeton, Maxine, Ellis, and Stanford) were released for propagation in 1935, though descriptions of them have not previously been published. Three additional peach varieties, the Penryn, Nestor, and Farida, and one plum, Padre, were released in 1938.

TYPES OF PEACHES

All of these new peaches are yellow-fleshed, nevertheless there are two very distinct types in their ancestry, although in some of them this may have been many generations before the origin of these varieties. One of these types is very familiar to American peach growers, for it is represented by the St. John, Early Crawford, and other varieties that have comparatively small flowers, sometimes no more than 17 or 18 mm. (roughly 0.65 inch) in diameter (fig. 1, *A*), and fruit with a more or less abundant external red over the yellow ground color. This red also appears in the pit cavity, often extending into the flesh next to the pit, and in extreme cases under the skin as well. Whether the varieties mentioned represent pure strains of the original type may be difficult to determine, but it is probable that they do, and there are also important foliage characters.

The other type of yellow-fleshed peach, although less familiar among American commercial varieties, is even less uncertain. The flowers are comparatively large, often 4 cm. (1.6 inches) in diameter when fully expanded (fig. 1, *B*) and the fruit is entirely devoid of red coloring, both on the outside and in the pit cavity. In pure types, or even in some varieties of hybrid origin, the pit cavity is brownish and this coloring never extends into the flesh. The Yellow Transvaal is apparently a pure strain of this type and no doubt originated somewhere in that part of Asia which includes northwest India and extends through Afghanistan to the Oxus River.

The limits of its original or even present distribution are unknown, but no evidence has been found that it extends farther east than the Province of Yunnan in southwestern China. Botanical collectors have repeatedly noted the indigenous character of the peach in that region. A yellow peach, similar to if not identical with the Yellow Transvaal, is reported at present as growing wild in parts of the Northwest Frontier Province of India, and as having the appearance of being an indigenous tree. The names for the peach in the native languages or dialects of India also give evidence of its native habitat. On the other hand, for 10 years an effort has been made to determine whether the yellow-fleshed peach is indigenous to China. The

author has had correspondence with Chinese who were educated in this country and are familiar with American peach varieties, with botanists and collectors of long experience in China, and with others who have lived in that country for varying periods. Returned travelers and explorers have been interviewed, and diligent search has been made of the literature pertaining to the subject. Nevertheless no reliable evidence has been found that the yellow peach is indigenous to China proper outside of the Province of Yunnan, or that it is even cultivated in that country with the exception of a few introductions of well-known American varieties. The Chinese say they do not like yellow peaches.

FIGURE 1.—Types of flowers of peach varieties: *A*, St. John, yellow-fleshed red-pitted type, small-petaled flowers 0.6 inch in diameter; *B*, Yellow Transvaal, pure yellow-fleshed type, flowers 1.4 inches in diameter; *C*, Soochow, a Chinese white-fleshed type, flowers 1.7 inches in diameter.

It may be stated also with equal definiteness that a type of white-fleshed peach is native to China, and these Chinese peaches are noteworthy as having the largest flowers of any of the known types (fig. 1, *C*). It does not follow, however, that all white-fleshed peaches came from China. It is even probable that the earliest white peaches known to Europeans were native to regions closer to the centers of Roman and Greek civilization.

All that can be said at present of the origin of the small-flowered, yellow-fleshed, red-pitted type so familiar in American orchards is that it must have come from the interior of Asia, perhaps from some mountainous district north or northwest of the range of the large-flowered yellow peach, and to the west of China. This conclusion

is reached through a process of elimination rather than any direct evidence, for it does not appear ever to have been collected anywhere in Asia by any of the explorers of the Bureau of Plant Industry.

LEETON

Origin

The Leeton peach is an open-pollinated seedling of Leader. The latter variety was originated by Luther Burbank. Although not grown commercially to any extent in California, the Leader is of interest from the standpoint of breeding. The fruit ripens in California in July, the time of the month depending on the season and locality. Some of the crosses in which the variety has been used as one of the parents mature among the earliest of any of the yellow-fleshed varieties.

Burbank apparently was of the opinion that Leader was of Muir and Early Crawford parentage. The foliage shows some resemblance to Muir, but the flowers are of the large-petaled type and differ from either the Muir or Early Crawford in this character. The fruit has considerable external red, but the flesh is yellow to the pit, which is small for a fruit of its size. It may be noted that all crosses in which Muir is used as one of the parents result in freestone varieties, whereas Leader, even though crossed with a freestone, frequently produces clings. It may be inferred, therefore, that the ancestry of the Leader includes the Muir (or that the two varieties have some parents in common) and also a yellow-fleshed cling.

Two or three trees of Leader were included in a shipment of Muir trees to Australia a few years ago. These trees, when they came into bearing, attracted the attention of William Johnson who had gone to New South Wales to manage a cannery. The fruit appeared to be very promising for freestone canning in Australia, but in California it did not prove so satisfactory. Seeds of the Leader were sent by Mr. Johnson to F. A. Dixon in California and were planted in the experimental orchard of the Bureau of Plant Industry at Palo Alto. Leeton is a seedling resulting from one of these seeds and is named for the locality in Australia from which the seeds were sent.

Description

Tree vigorous with habit of growth of Muir. Leaves mostly 15.2 to 19 cm. long (6 to 7.5 inches), 3.2 to 3.8 cm. broad (1.25 to 1.5 inches), narrow, oblong-lanceolate, somewhat folded upward, sometimes only slightly so, curved backward on the midrib, but less so than most yellow-fleshed varieties, and often nearly straight; petiole 0.95 to 1.5 cm. long; glands two to six, reniform; the margins crenate, the crenations only slightly curved, the gland at the tip mostly set outward slightly from the base of the following crenation.

Flowers light pink, about 3.7 cm. broad when fully open, and of the large-petaled type; calyx greenish toward the base, dark red on the upper two-thirds, calyx lobes pubescent on the upper half or two-thirds on the exterior surface, glabrous within except for the pubescent margin, 5 mm. long, 4 mm. broad, the cup or tube about 5 mm. deep, orange colored within, petals round or nearly so, 1.7 to 1.9 cm. long, 1.7 cm. broad, abruptly contracted toward the short, narrow cuneiform claw, rounded at the apex.

Fruit (fig. 2) ripening in the season of Triumph, varying from 6.1 cm. long, 5.8 cm. in the suture diameter, 6.3 cm. in transverse diameter in a small specimen, to

6.9 cm. long, 6.9 cm. in suture diameter, and 8 cm. in the transverse diameter in a larger specimen; cavity medium deep to shallow, rather narrow, stem attachment small; suture shallow but well marked, extending beyond the apex; the apex rounded and often slightly depressed in the suture line, sides often slightly unequal; skin separating readily from the pulp, ground color golden yellow, mottled and splashed with bright red when fully mature but with very little solid red, when tree-ripened the red covering from one-quarter to three-quarters of the surface, but heavily shaded specimens have less red, pubescence medium, flesh clear lemon yellow without trace of red, fairly firm but juicy when well ripened, firm texture, not very stringy, ripening from the outside in, semicling but usually separating easily from the stone in slicing; flavor mild subacid, quality good for a yellow peach of its season; stone small for a peach of its size, about 3 cm. long, 1.9 cm. thick, wedge-shaped toward the base, pitted on the lower part, grooved on the upper half or toward the apex, mucronate or short-pointed at apex, rather light in color.

FIGURE 2.—Fruit of the Leeton, an early-season yellow peach. The Leeton has been tested mainly in California, where it attains good size and color.

CHARACTERISTICS

The foliage of the Leeton shows even more Muir character than does the Leader and probably differs in this respect from all other commercial varieties grown in California, though not from the other seedlings of Leader obtained from the same introduction. The fruit is more even in ripening than Triumph, the base ripening nearly with the apex, whereas in the Triumph the base of the fruit is often green and hard when the apex is soft ripe. The red color of the skin does not appear quite so early as in the Triumph, but it is a brighter and more attractive red than in that variety. The yellow also is a bright lively yellow, while in Triumph it is dull, with a greenish cast. On small wood the fruit does not always size so well as on larger wood, and the tree, in some localities at least, may require heavier pruning than some other varieties.

Adaptation

The Leeton has been tested mainly in California and is adapted to peach districts north of the Tehachapi Mountains. It is not adapted to southern California or other sections where delayed foliation [1] may

Figure 3.—The original Maxine tree at 12 years of age in the experimental orchard at Palo Alto, Calif.

be an important factor in peach production. It has not been tested in the eastern peach sections except at the United States Horticultural Station, Beltsville, Md., where it appears to be hardy in bud.

[1] In climates where there is insufficient winter cold to break the rest period some varieties of peach are noticeably slow in "leafing out" in the spring. In some seasons blossoming may be considerably delayed with the leaf buds opening still later. The term "delayed foliation" has been applied to this phenomenon.

The fruit has been shipped to eastern markets, and in a test with Triumph and an unnamed hybrid proved to have the best carrying quality of the three. It is not adapted to either canning or drying. Though one of the earliest yellow-fleshed peaches to ripen, it is equal or superior to some later-ripening varieties as a dessert fruit.

MAXINE

Origin

The Maxine peach originated from a cross of a variety labeled "No. 1 Late" with Lemon Free made at the South Haven substation of the Michigan Agricultural Experiment Station. The cross was made in

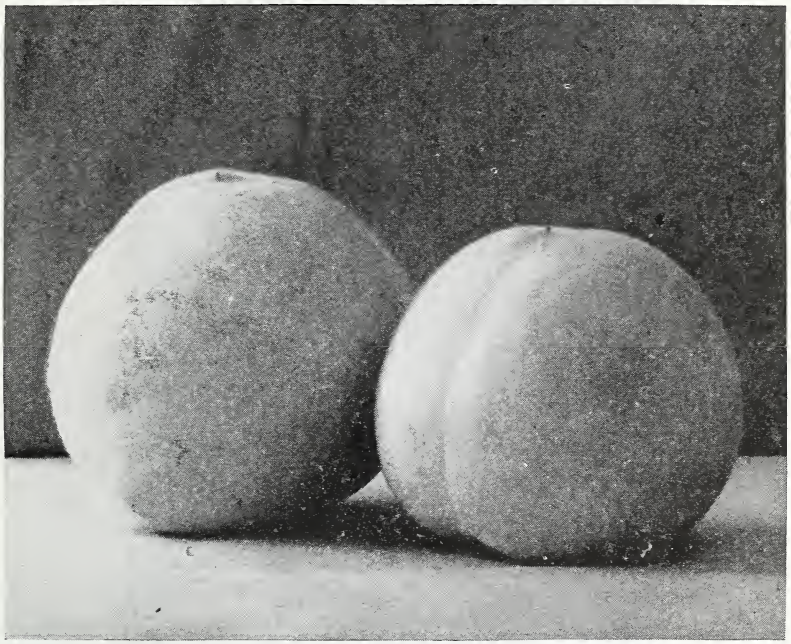

Figure 4.—Fruit of the Maxine, a yellow-fleshed freestone variety ripening in season with St. John and Rochester.

1919 and the seed was taken to California, where the resultant seedling was planted in the experimental orchard at Palo Alto in 1922 (fig. 3). From the time it came into bearing, about 1925, it has never failed to produce a heavy crop of fruit. The cross was made on the basis of the behavior of both parents following a winter of unusually low temperatures, when many varieties suffered severely. No record was found at the station concerning No. 1 Late, and it may have been an instance of the bud failing to grow, and the tree therefore only a stock seedling. Instead of being late, the fruit ripened fully as early as the Dewey; it seemed to bear better than Dewey and the fruit had better flavor. Lemon Free is listed in Storrs & Harrison Co.'s price list for 1886 as Lemon, but without description. In their catalog for 1888 it is given as Lemon Free and described. The statement is made that it originated in Summit County, Ohio, and that it had proved to be hardier

than any other good peach grown in that section. Apparently nothing is known of its parentage.

Description

Tree of somewhat spreading habit and unusual productivity. Well-developed leaves, mostly 12.8 to 17.5 cm. long (5.0 to 6.9 inches), 3.2 to 4.15 cm. broad (1.25 to 1.65 inches); petiole 1 to 1.15 cm. long; the blade lanceolate, recurved on the

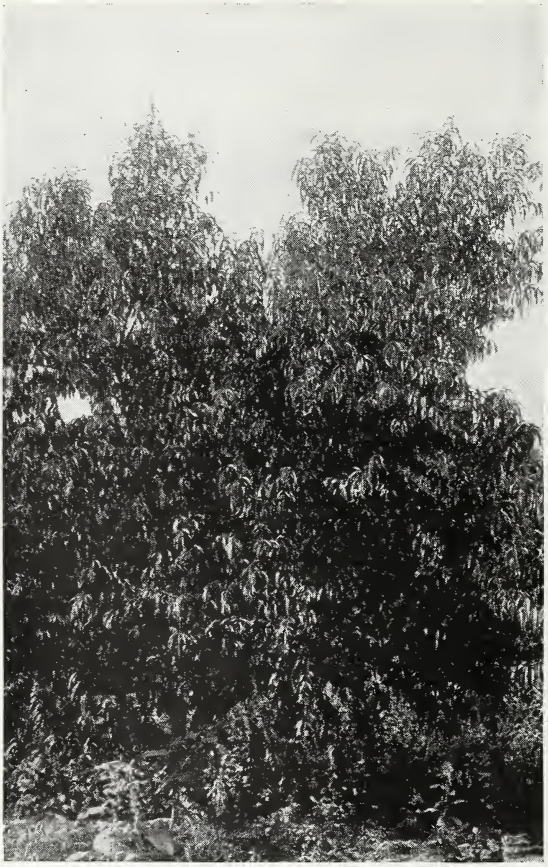

Figure 5.—Maxine grafted on a bearing Levy tree, February 1935. Photographed October 20, 1937, Penryn, Calif.

midrib toward the apex; the margins crenate with the brownish gland set close to the beginning of the following crenation; leaf glands two to six, mostly cup-shaped or globose.

Flowers light pink, of the large-petaled type and about 4 cm. broad when fully expanded; calyx dark red, the lobes grayish pubescent externally on the upper half, about 5 mm. long, 4.5 to 5.5 mm. broad, glabrous within, the tube or cup 5 mm. deep, orange colored within, petals nearly round, about 2 cm. long, 1.8 cm. broad, rounded or sometimes tapering toward the short claw.

Fruit (fig. 4) ripens with or somewhat later than St. John; about 6.8 cm. long 7.3 cm. in suture diameter, 7.3 cm. in the transverse diameter, and nearly round, sides equal or very nearly so, and the fruit symmetrical; cavity medium deep and fairly narrow, suture well defined but little depressed, extending beyond the

rounded apex, or the apex sometimes with a slight mamelon, pubescence medium; skin fairly tough, lemon yellow, somewhat mottled and splashed with red where exposed, the red even in well-colored specimens not covering more than one-eighth to one-quarter of the surface; flesh clear uniform yellow without trace of red at the pit, texture fine, juicy, flavor mild but with decided character, quality excellent, flesh separating freely from the stone; the stone small for a fruit of its size, 3.3 cm. long, 2.7 cm. in the suture diameter, 2 cm. thick, grooved along the dorsal ridge, grooved and ridged along the ventral edge, with various grooves and ridges along the sides, and a few pits on the sides toward the base, short pointed at apex.

Characteristics

As already noted (p. 8), the variety is very productive and the original tree has never failed to produce an abundant crop. When properly thinned, the fruit sizes up well even on the small wood. At Penryn, in Placer County, Calif., Levy trees "dehorned" and grafted to Maxine in February 1935 (fig. 5) produced in 1936 slightly more than an average of 2 boxes per tree for 260 trees; trees of the St. John in the same orchard yielded that year 1½ boxes per tree. The trees were planted 125 to the acre. The fruit is attached firmly to the tree, and in Placer County may ripen over a period of 2 to nearly 3 weeks. The fruit ripens uniformly throughout, and, though deficient in red, the bright yellow nevertheless makes it attractive. Its excellent flavor and good shipping quality seem destined to make this an important shipping variety in California at least.

Adaptation

The Maxine has been tested rather thoroughly in California, where there are plantings of 10 acres or more. It has proved hardy in Michigan but is not in commercial production there. It also has survived winter temperatures at Beltsville, Md., when buds of a number of other varieties were seriously injured. The fruit cans well for a freestone, and the dried product has a very good appearance, although the dry-out ratio is not so good as in later varieties. It should be well thinned, as the set of fruit is so heavy under favorable conditions that there is a tendency to leave too many fruits on the tree. It requires about as much cold to break the rest period as Elberta, although it is more subject to delayed foliation than that variety and, therefore, is not likely to prove adapted in regions of the United States where delayed foliation or prolonged dormancy is a serious problem in peach production.

PENRYN [2]

Origin

The Penryn peach originated from a cross of Maxine with Leader made at the experimental orchard at Palo Alto in 1931 and was selected from 29 seedlings of the same parentage. It fruited first in 1934 and the fruit matured that year on July 16. This fruit was produced on grafts set in the spring of 1933 and was later in maturing than in subsequent years when the grafts were older. The variety is named Penryn, after the locality in Placer County where the variety was first tested in a commercial orchard.

[2] The Penryn peach was distributed for testing as No. 32-11A.

Description

Tree vigorous and very productive. Leaves 9.5 to 15.3 cm. long (3.75 to 6.0 inches), 2.6 to 4.5 cm. broad (1 to 1.7 inches); petiole 1 to 1.3 cm. long; glands three to six, reniform or sometimes round-reniform, on the base of the blade or upper part of the petiole; the blade lanceolate to oblong-lanceolate, very rarely

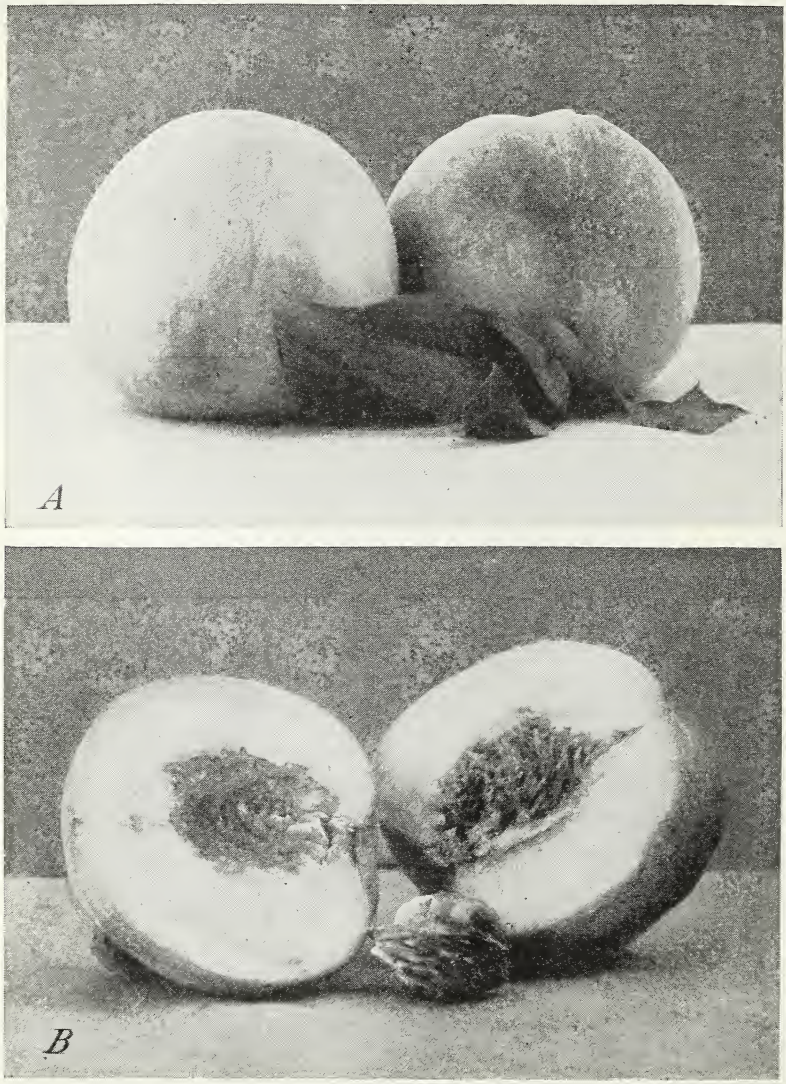

Figure 6.—Fruit of the Penryn. In habit of growth and bearing this variety resembles Maxine, but the fruit has more red coloring than that of the Maxine.

broadest above the middle, glabrous, slightly recurved; the margins slightly crinkled when pressed flat, finely glandular; the marginal glands small; midrib tinged red to deep red.

Flowers of the large-petaled type, light pink, 3.5 to 5 cm. in diameter when fully open, calyx dark red, about 10 mm. long, the lobes 4.5 cm. long, 4 to 5 mm.

broad, rounded at the apex, grayish pubescent on the upper half of the external surface, glabrous within, the cup about 4 mm. deep, the color deep orange within; petals round or round-oval, 18 to 20 mm. long, 15 to 18 mm. broad, abruptly contracted to the short claw, rounded at the apex; stamens about equal to the petals or only slightly exceeding them; anthers with pollen.

Fruit (fig. 6) sometimes ripening a few days in advance of Maxine, but overlapping that variety somewhat; about 7.2 cm. long, 7.2 cm. in the suture diameter, and 7.6 cm. in transverse diameter, rounded at the apex, the halves slightly unequal, but the shape good; suture not pronounced, pubescence short and not so abundant as to be objectionable, color clear golden yellow when fully mature with mottled and splashed red covering from one-third to one-half the surface, or in specimens in the strongest light sometimes a little solid red; flesh good yellow, pit cavity without red, or at most only tinged with pink, and sometimes with a little red at the apex of the pit in the suture line, juicy, mild subacid and with a pronounced peach flavor, completely free from the stone, quality very good; stone about 3.2 cm. long, 2.4 cm. broad, narrowed toward the base when viewed edgewise, short-pointed at the apex, the dorsal edge with a rather deep groove, the ventral edge with more shallow grooves, the sides irregularly grooved and sparingly pitted. In habit of growth and bearing this variety resembles Maxine, but the fruit has more red coloring than Maxine.

Adaptation

The Penryn has been tested only in California and can be grown in all peach districts north of the Tehachapi Mountains. It is recommended for testing in the eastern peach districts, but not in any section of the Southern States where delayed foliation may be a problem. It is primarily an early dessert variety. Storage tests have indicated that it is satisfactory for distant shipment. The dried product is fair, but as in other early-ripening varieties the dry-out ratio is too great for it to be planted for that purpose.

NESTOR [3]

Origin

The Nestor peach is the result of a cross of Muir with Paloro made in 1923 and fruited in 1928. The Muir is now grown in California primarily for drying, but for some years it has had the serious defect of producing too high a proportion of split pits. The wood is also inclined to be somewhat brittle, and the tree therefore does not carry its load so well as some varieties. The dried product, however, is superior in appearance to that of all other commercial varieties in that it has a brighter, clearer yellow and retains that color in storage better than does the dried product of other varieties.

The Nestor (fig. 7) was selected from a large number of seedlings produced from 20 or more crosses as being the most satisfactory from the standpoint of quality of the dried product. So far no cross that does not have Muir or a descendant of Muir as one of the parents has produced a satisfactory variety for drying from the standpoint of present standards. The Pacific Rural Press in 1888 [4] gave an account of the origin of the Muir in which it was stated that about 10 years previously G. W. Thissell, of Winters, Calif., and his family had visited the home of John Muir, about 2½ miles west of Dixon in Solano County. A peach tree had been noted in the yard by Mrs. Thissell, which she had thought was different from any she had ever

[3] The Nestor peach was distributed for testing as No. 26–53.

[4] Anonymous. The Muir peach. Pacific Rural Press 36: 225, illus. 1888.

seen. Buds were obtained and worked into Mr. Thissell's trees. The first announcement of the value of the Muir was made by R. B. Blowers at a meeting of the State Horticultural Society in Septem-

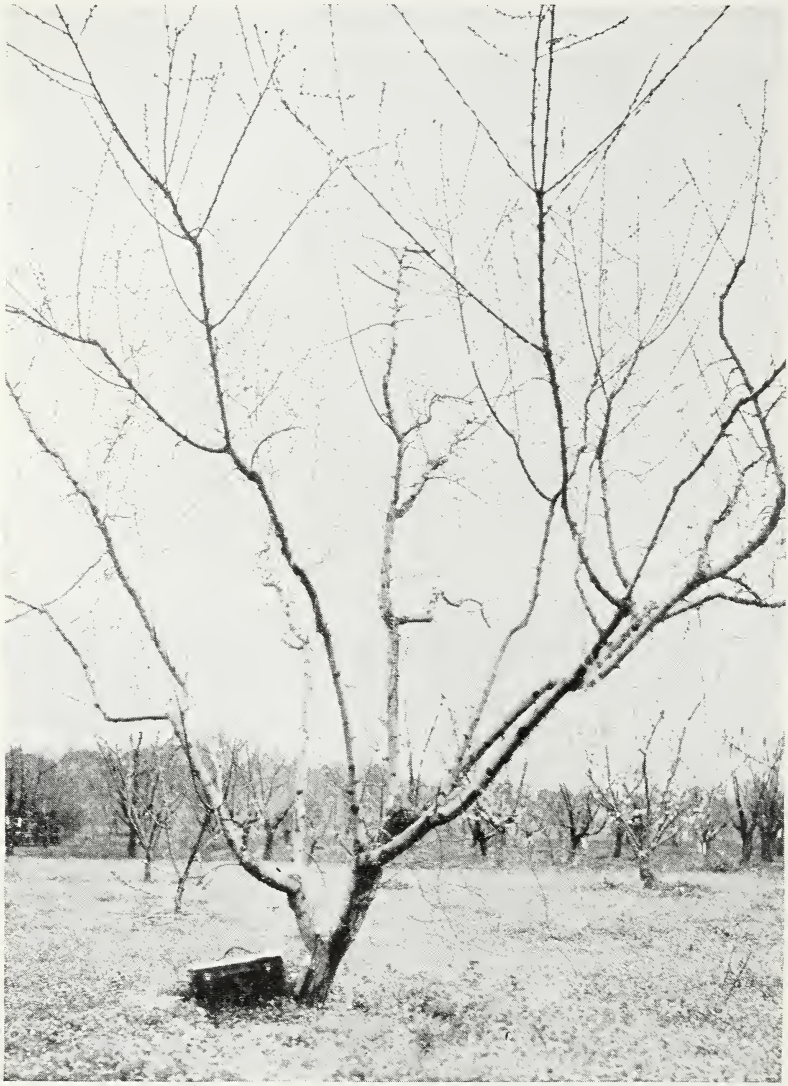

FIGURE 7.—The original tree of the Nestor peach growing in the orchard at Palo Alto, Calif.

ber 1882, at which time he showed a sample of the dried product. No clue has been discovered concerning its probable parentage, although considering the quality of the Muir, that information would be of much value.

The variety Paloro, the pollen parent of the Nestor, is an early midsummer cling, the original tree of which no longer exists. Its parentage is unknown, but the original seedling was discovered in a dooryard in Gridley, Butte County, Calif., by F. A. Dixon about 1911.[5] Scions were worked into 4-year-old trees at Hunt Bros.

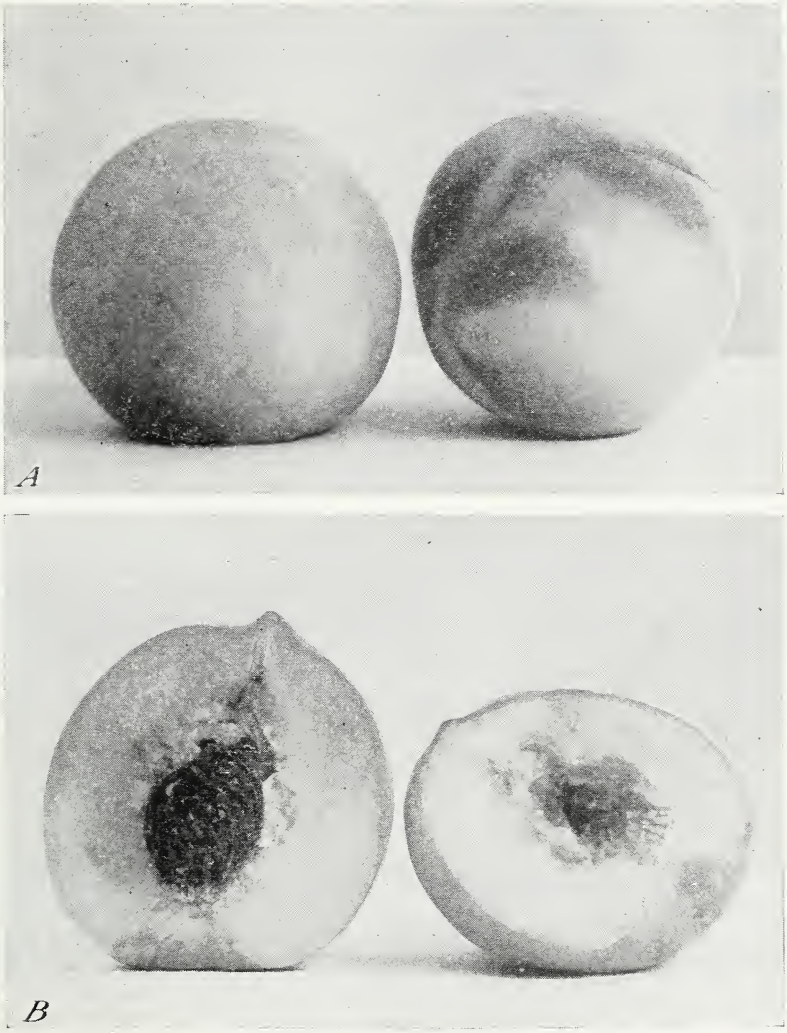

FIGURE 8.—Fruit of Nestor, a cross of Muir with Paloro, maturing at the season of Muir. It is primarily a fruit for drying.

Packing Co. orchard at Linden, Calif. Its most serious defect is its glandless leaf, but the excellent quality of its fruit has caused it to become a very popular cling for canning.

[5] Letter of F. A. Dixon, Sept. 18, 1922, in the files of the Division of Fruit and Vegetable Crops and Diseases.

Description

Tree of vigorous growth and productive. Leaves 14 to 17.5 cm. long (5.5 to 6.8 inches), 2.7 to 4 cm. broad (1.1 to 1.6 inches), very slightly convolute, recurved, oblong-lanceolate, the margins finely crenate, and the crenations gland-tipped; petiole about 1 cm. long; the glands at the base of the leaf blade two to six and globose.

Flowers of the small-petaled type, about 18 mm. broad when fully expanded; calyx about 12 mm. long, mostly dark red without, calyx lobes about 5 mm. long, 4 to 5 mm. broad, rounded at the apex, the cup 4.5 mm. deep, orange colored within; petals light rose pink, mostly lighter toward the center and base, 8 to 9 mm. long, 6 to 7 mm. broad, broadly oval to round oval, rounded or narrowed toward the short claw.

Fruit (fig. 8) maturing at the season of Muir, 7.3 cm. long, 7.5 cm. in suture diameter, 7.6 cm. in transverse diameter, rounded at the apex, with practically no protruding point, symmetrical; pubescence medium, ground color golden yellow overlaid with mottled, splashed, and a very little solid red, or the solid red absent, and the red overlay usually covering not more than a third of the surface, the prevailing color being yellow; flesh clear yellow and slightly pink in the pit cavity, very free from the stone, fairly juicy, and the flavor good; quality very good; stone small for a peach of its size, 3 to 3.5 cm. long, 2.6 to 2.8 cm. broad, about 1.9 cm. thick, narrowed toward the base when viewed edgewise, rounded but with a short point at the apex, the dorsal edge with a deep groove, the ventral edge with rather shallow grooves, pitted and grooved in the lower half of the sides, irregularly grooved at the apex.

The Nestor is more nearly round than the Muir, less strongly pubescent, and somewhat more juicy; the pit is more nearly round and less pointed. The halves of the dried product are also more nearly round than the Muir.

Adaptation

The Nestor has not been tested outside of California and is not recommended for the southern part of that State. It is primarily a peach for drying. The fruit has too little red color to make it desirable for shipping, and the flesh is somewhat too pale for the highest quality of freestone canning peach. These very deficiencies for canning, however, are favorable characteristics for drying. Samples of the dried product have been submitted repeatedly to the experts of the dried-fruit industry who have pronounced the quality excellent.

STANFORD

Origin

The Stanford peach, a cling variety, originated from a cross made in 1925 of Hauss ♀ × Phillips ♂, and the original tree first fruited in the experimental orchard at Palo Alto in 1929. The Phillips has been for many years a favorite variety with the canning industry in California, and at one time was planted more extensively than any other cling variety. The trees were vigorous and yielded a heavy tonnage of fruit. It was also one of the first commercial varieties to be grown in California in which the pit cavity was free from red pigment and, therefore, contributed in a marked degree to the rapid development of the cling-peach canning industry of the State.

The fruit, however, is not considered to be so highly flavored as some of the so-called midsummer varieties, and in recent years there has been trouble from split pits and "gumming" of the fruit. The latter defect particularly has caused the variety to be looked upon with disfavor. A series of crosses was undertaken with the object of

producing a variety that would ripen at or about the Phillips' season, have the midsummer quality, and be free from the defects that now characterize Phillips. The following crosses were made with the above purpose in view: Hauss × Phillips, Phillips × Lovell, "Yellow Free" × Phillips, Yellow Transvaal × Halford, Yellow Transvaal × Pullers. The resulting seedlings varied in ripening date from about a week in advance of Phillips to a week later. The Stanford, although maturing in most localities slightly in advance of Phillips, was selected from among more than 150 promising seedlings.

The Phillips has played such an important part in the development of the cling-peach industry that its origin is of particular interest.[6] Little, however, is known of it except that it appeared as a chance seedling in the orchard of Abbott & Phillips in Sutter County and J. T. Bogue secured the right of propagation, offering trees in his circular for 1890–91.

The variety was named and described by Wickson in 1889.[7] It differs from any of the other commercial varieties of cling peaches in that it has brownish rather than red pigment at the pit, although it is similar in this respect to the Golden Cling of A. T. Hatch at Suisun, Calif., mentioned by Wickson (not the Golden Cling of Dr. Ellis)[8] and the Mother Porter a seedling found in the yard of Mrs. Porter near Napa. The varieties with brownish pigment at the pit are described as being "yellow to the pit," since the brown pigment never penetrates the flesh as does the red pigment if it is present in any quantity. These three varieties appeared at about the same time, and a brown-pitted and perhaps pure-yellow type of peach must have been introduced from some source. Neither the Golden Cling nor the Mother Porter appears to have been extensively planted. The Hauss, a variety with glandless leaves, originated as a chance seedling selected by F. Hauss, Oswald, Sutter County, Calif. The seed was planted in 1896, and the tree fruited in 1903.[9]

Description

Tree upright rather than spreading in growth (fig. 9). Leaves 11.5 to 17.8 cm. long (4.5 to 7 inches), 3.8 to 4.4 cm. broad (1.5 to 1.75 inches), oblong-lanceolate, convolute and recurved longitudinally; petiole 1 to 1.3 cm. long; the margins crenate, the crenations tipped with brownish pointed glands; glands at the base of the blade two to four, globose.

Flowers light pink, of the small-petaled type, about 17 to 18 mm. in diameter when fully open; calyx about 12 mm. long, greenish without, overlaid with mottled or solid dark red, the lobes about 5 mm. long, 4 to 5 mm. broad, rather sparsely pubescent externally and grayish, cup about 5 mm. deep, orange colored within; petals about 8 mm. long, very light pink toward the margin, the center cream colored, round-oval, the claw about 1 mm. long.

Fruit (fig. 10) ripening a few days in advance of Phillips, or in a few localities at about the same season as that variety; 7.5 cm. long, 8.2 cm. in suture diameter, 8.5 cm. in transverse diameter, the halves usually equal, and the fruit nearly or quite symmetrical, rounded at the apex, suture distinct but not depressed; pubescence short, not very abundant, ground color golden yellow overlaid with mottled, splashed, and sometimes a little solid red, covering from less than one-fourth to about a third of the surface, or, more rarely, the red color scarcely noticeable; flesh firm and clinging to the stone, fine-grained, clear deep yellow with barely a trace of red at the pit that does not extend into the flesh, sometimes

[6] Anonymous. A new California peach. Pacific Rural Press 40 : 351, illus. 1890.
[7] Wickson, Edward J. The California fruits and how to grow them. 575 pp., illus. San Francisco. 1889. See pp. 305 and 308.
[8] S., W. A. A valuable peach. (Letter to editor.) Pacific Rural Press 14:130–131. 1877.
[9] Correspondence in fruit history files of the Division of Fruit and Vegetable Crops and Diseases.

entirely absent; subacid, flavor good, quality excellent; stone 3.5 to 3.8 cm. long, 2.8 to 3.1 cm. broad, wedge-shaped toward the base, short-pointed at the apex, somewhat ridged along the dorsal edge, shallow furrows along the ventral edge, pitted and furrowed toward the base, and curved furrows on the upper half of the sides.

FIGURE 9.—The Stanford cling in an orchard near Linden, Calif. Planted as dormant buds in 1936. Photographed October 21, 1937.

FIGURE 10.—Stanford, a canning cling peach, ripening immediately following Halford. Grown at Palo Alto, Calif., 1938.

The Stanford peach is a canning cling that ripens at a convenient season for some growers, because it matures in most localities immediately following Halford and so fills in the gap that occurs between that variety and Phillips. The tree bears a good crop of large fruit, and the halves are thick-meated.

Adaptation

The Stanford is adapted to all cling-peach sections of California except in the southern part of the State. Like most California cling-peach varieties, it is doubtful whether it would be satisfactory in the eastern United States.

ELLIS

Origin

The Ellis peach, a cling variety, is the result of a cross made in 1925 of Phillips with Linden, and came into bearing in the experimental orchard at Palo Alto in 1929. It is named Ellis in honor of T. O. Ellis, who in 1877 introduced the Golden Cling, which appears to be one of the first of the California cling varieties that later resulted in the development of the largest cling-peach canning industry in the world.[10]

Figure 11.—Fruit of the Ellis, a canning cling peach, the result of a cross of Phillips with Linden; maturing about the season of Halford.

The Linden is a variety planted to a limited extent some years ago in the Linden district near Stockton, Calif. It is said to be another name for a variety once grown in the vicinity of Fresno, but efforts to establish its identity have not met with success.

Description

Like most cling varieties in California, the tree is vigorous and productive. Leaves 12.75 to 17.8 cm. long (5 to 7 inches), 3.5 to 4.4 cm. broad (1.4 to 1.75 inches), somewhat convolute, recurved, oblong-lanceolate, the margins crenate and the crenations tipped with brownish, pointed glands; petiole 5.5 mm. to 1.3 cm. long; the leaf glands two to four, globose.

Flowers of the small-petaled type, delicate rose pink, about 17 mm. broad when fully open; the calyx about 12 mm. long, greenish, overlaid with more or less dark red on the external surface; the lobes about 5 mm. long, 4 to 5 mm. broad, rounded at the apex, grayish pubescent without, glabrous within, the tube 4 mm. deep, orange colored within, petals round oval, about 8 mm. long, 7 mm.

[10] See footnote 8.

broad, pale pink toward the center and base, slightly crinkled at the margin, rounded or narrowed toward the short claw, rounded at the apex.

Fruit (fig. 11) maturing about the season of Halford, 7.1 cm. long, 7.6 cm. in suture diameter; 7.6 cm. in transverse diameter, rounded at the apex, either with or without a short protruding point 3 to 5 mm. long, the suture well defined but not depressed, halves equal or nearly so and the fruit very symmetrical; skin with pubescence very similar to that of the Phillips; golden-yellow ground color with rather inconspicuous mottled red sometimes covering one-third of the surface, other specimens with barely a trace of red and the predominating color in all bright golden yellow; flesh clear deep yellow, firm cling, fine-grained, and without a trace of red at the pit; flavor very good, subacid, quality good, stone about 3.5 cm. long, 2.8 cm. broad, 2.2 cm. thick, cuneate toward the base when viewed edgewise, ridged and grooved on the dorsal edge, mostly rounded, shallow grooves on the ventral edge, sharp pointed at the apex, and the sides rather irregularly grooved and sparingly pitted.

The fruit of Ellis has more of the Phillips character than any of the other crosses of midsummer varieties with Phillips; the point at the apex is less pronounced than in fruit of the Phillips grown under the same conditions, and the stone is smaller.

Adaptation

The Ellis is a canning cling and is adapted to the same cling-peach districts as the Phillips, although it is not intended to replace that variety, as it ripens earlier. It is doubtful whether it would be as successful for growing in the East as varieties showing less of the influence of the pure-yellow type.

FARIDA[11]

Origin

The Farida peach, a cling variety, is the result of a cross made in 1931 between a cling seedling of Leader, experimental orchard No. 26–13, which came from the same importation as the Leeton, with a cross of the Paloro with Tuskena made in 1924. The latter cross was made with the purpose of securing a cling that would have less red than the Tuskena and ripen the same season; in other words, a variety to replace the Tuskena, which was no longer acceptable. This cross, however, did not prove satisfactory. The fruit ripened a few days later than Tuskena, the flesh was not so deep a yellow as desired, and there was too much red about the pit. The Leader seedling, on the other hand, ripens at about the same time as the Tuskena, has good yellow flesh color, and is entirely free from red at the pit.

A cross between these two varieties therefore appeared to offer promise of the desired objective. The fruit of some of the resulting seedlings, like that of the seed parent, was free from red at the pit. The fruit of other seedlings, on the other hand, had sufficient red external color to be extremely attractive, yet not enough red at the pit to be objectionable from the canner's point of view. The seedling selected for introduction produced its first fruit in 1935.

Description

Leaves 15 to 16.5 cm. long (6 to 6.5 inches), 4.0 to 4.3 cm. broad (1.6 to 1.7 inches), oblong-lanceolate, or very rarely broadest above the middle, slightly convolute and recurved; the margins crenate and the crenations tipped with

[11] The Farida was distributed for testing under No. 33–21 A.

pointed glands; the midrib strongly tinged with red; leaf glands reniform, three to five on the base of the blade and upper part of the petiole; the petiole 1 to 1.5 cm. long.

Flowers of the small-petaled type, not broadly expanded, about 2.2 cm. broad when fully open; calyx dark red, about 11 mm. long, the lobes 5 mm. long, 4 to 4.5 mm. broad, rounded at the apex, grayish pubescent on the upper two-thirds; glabrous within, the cup or tube 4 mm. deep, orange colored within; petals rose pink when freshly opened, about 11 mm. long, 9 to 10 mm. broad, round, or more frequently round-oval, rounded or abruptly contracted to the short claw, rounded at the apex, the longer stamens only slightly exceeding the petals, anthers with pollen.

Fruit (fig. 12) maturing as early as Tuskena, 7 cm. long, 7.4 cm. in suture diameter, 7.6 cm. in the transverse diameter, nearly round, symmetrical; skin

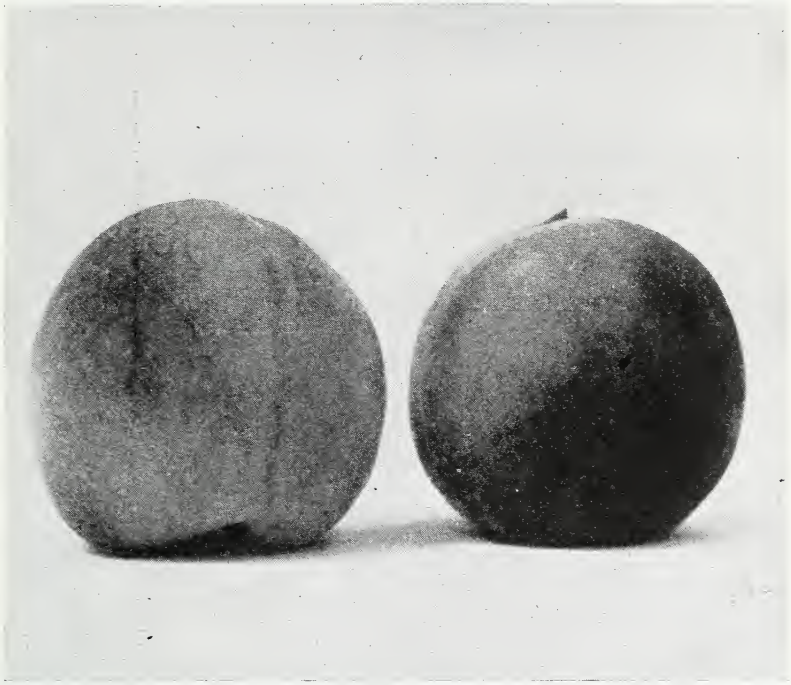

FIGURE 12.—Farida, an early, well-colored clingstone variety, maturing at the season of Tuskena. It does not have the excessive red color at the pit characteristic of Tuskena.

with medium pubescence, ground color rich yellow overlaid with mottled, splashed, and some solid red, sometimes covering one-half to two-thirds of the surface, suture not much more than a line, the apex rounded; flesh good yellow with some red at the pit, but not extending into the flesh; texture firm, cling, fine grained, flavor and quality good.

ADAPTATION

The Farida is introduced primarily to meet the demand for a well-colored cling that matures at the season of Tuskena for eastern shipment and for canning, that does not have the excessive red at the pit that characterizes the latter variety, and that is free from split pits. Like the fruit of most crosses of Tuskena parentage that have a pronounced external red coloring similar to the parent, the flesh is not so deep a

yellow as that of many later-ripening clings or even as fruit of other seedlings of the same parentage in which the influence of the pure-yellow type of peach is more marked. The variety nevertheless produces a very satisfactory canned product except possibly when grown

FIGURE 13.—The original tree of the Padre plum in bloom at Palo Alto, Calif.

in the warmest localities of the interior valleys of California. It will appeal to those who are partial to the Tuskena quality, the variety that so long has been the most outstanding early-ripening yellow-fleshed cling for canning. The Farida has not been tested outside of California and is not recommended for the southern part of the State.

PADRE PLUM

Origin

The Padre plum was produced as the result of a cross of Wickson with Santa Rosa. The cross was made at the United States Plant Introduction Garden, Chico, in 1921, and the tree planted in the experimental orchard at Palo Alto in 1923 (fig. 13). The fact that *Prunus simonii* Carr. as well as *P. salicina* Lindl. is concerned in the parentage of Wickson has been recognized, but in the case of Padre the evidence of *P. simonii* influence is still more marked. As might be expected, therefore, in tree characteristics Padre shows greater resemblance to Wickson than to Santa Rosa.

Description

Tree vigorous and with an upright habit. Well-developed leaves, mostly 10.2 to 14 cm. long (4 to 5.5 inches), oblanceolate, somewhat acuminate toward the apex; petiole 1.25 to 1.85 cm. long (0.5 to 0.75 inch); usually with four to six globose glands at the base of the blades or on the upper end of the petiole;

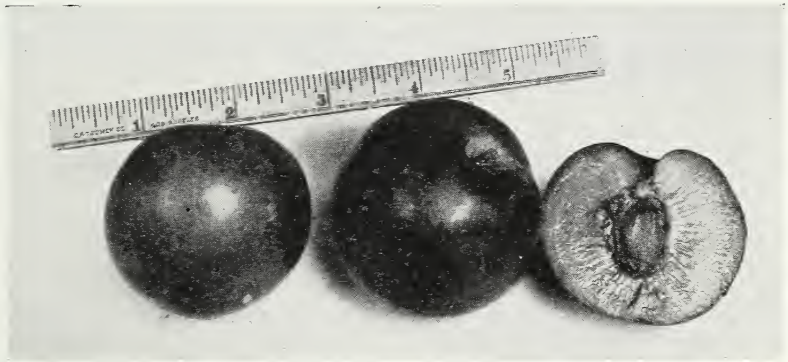

Figure 14.—Fruit of the Padre plum.

margin of the blades doubly serrate, the serrations rounded but tipped with brown, pointed glands, upper surface of the blade yellowish green, the lower surface paler, both surfaces glabrous, lateral veins rather prominent on the lower surface.

Flowers white, calyx about 6 mm. long, 3 mm. broad, the lobes with glands along the margins, calyx green externally, the cup with a slight yellowish cast within, glabrous within and without, petals white, round-ovate, about 11 mm. long, 9 mm. broad, anthers yellow, pollen not very abundant.

Fruit (fig. 14) 5.3 to 5.7 cm. in suture diameter, 5.7 or some specimens even 6.2 cm. in transverse diameter; somewhat oblate, very symmetrical, cavity narrow, about 5 to 8 mm. deep, regular, apex rounded; external color at maturity rather bright carmine red over the entire surface, dots yellowish gray, rather irregular in shape, abundant toward the apex, very few at the base, sometimes with irregular yellowish lines on portions of the surface just above the base; skin very waxy to the touch and with a thin grayish bloom, fairly tough, peels from the pulp readily in fully ripened specimens, suture line very indistinct; flesh attractive yellow, without any suggestion of red, or when very ripe some bright red next to the skin, and streaked light red next to the pit, firm, juicy, fine texture, clings to the stone; flavor mild with a suggestion of *Prunus simonii*, very pleasing; quality excellent, season following and somewhat overlapping Santa Rosa.

Characteristics

In shape and venation the leaves resemble Wickson more closely than they do the Santa Rosa, although the serration of the margins appears to be somewhat intermediate in character, but perhaps more closely approaching that of the Wickson than Santa Rosa. The foliage retains its green color and remains on the tree later in the autumn than the foliage of the Santa Rosa, the variety resembling Wickson also in this particular. Padre has more glands at the base of the blade than Santa Rosa, and the petioles are glabrous or nearly so, whereas in Santa Rosa they are pubescent on the upper surface.

Adaptation

Padre has not been tested outside of California, but it bears abundantly in the interior valleys of that State, in the Santa Clara Valley, and in southern California. For market purposes it should be harvested before much of the red coloring appears, as this color will develop in transit. It has been shipped to the New York market and has been held in storage for 3 weeks, then held out of storage for another week with excellent results. Its pollination requirements are not definitely known, but it has fruited well in an orchard interplanted with Satsuma and Duarte varieties.

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